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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,236	05/02/2006	Teruo Mori	81864.0055	2936

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EXAMINER	
ENSEY, BRIAN	
ART UNIT	PAPER NUMBER
2615	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,236	MORI, TERUO	
	Examiner	Art Unit	
	Brian Ensey	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-14 and 16-20* is/are rejected.

7)☒ Claim(s) *2 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/9/05,10/17/07,3/4/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, 9, 11, 13, 14 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Pierce U.S. Patent No. 1,882,401.

Regarding claim 1, Pierce discloses a speaker unit comprising: a vibrator (2) which has one end and the other end and vibrates in a given direction in response to an incoming signal, a counter-mass (73) which is provided on said one end of said vibrator, and a diaphragm (68) which is connected to said vibrator at said other end and outputs sound when it receives vibration from said vibrator, wherein said counter-mass transmits the vibration from said vibrator in a concentrated manner to said diaphragm side (See Fig. 8 and page 3, lines 78-91).

Regarding claim 7, Pierce discloses a sound output device comprising: a vibrator (2) which has one end and the other end and vibrates in a given direction in response to an incoming signal, a counter-mass which is positioned on said one end of said vibrator and has a given multiple or more of mass than that of said vibrator, a housing which holds said vibrator and said counter-mass and a transmission member which transmits vibration generated by said vibrator at said other end to said housing outside (See Fig. 8 and page 3, lines 78-91).

Regarding claim 9, Pierce further discloses said sound output device is stick-shaped as a whole by structuring said housing such that the length thereof in the vibrator direction of the vibrator is larger than that in the direction perpendicular to the vibration direction (See Figs. 2, 3 and 5-9).

Regarding claim 11, Pierce further discloses said counter-mass provides an inertia force only in the vibration direction of said vibrator when said vibrator vibrates See page 2, lines 63-76).

Regarding claim 13, Pierce further discloses a diaphragm (68) which outputs sound when it receives vibration from said vibrator via said transmission member is provided (See Fig. 8 and page 3, lines 78-91).

Regarding claim 14, Pierce further discloses a joint (bolted together with bolts (95) at connection joint between the diaphragm and transmission member (75)) which attaches said housing and said diaphragm to each other is provided (See fig. 8).

Regarding claim 20, Pierce further said sound output device is portable (Used on a table, i.e., portable, See Fig. 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-6, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. U.S. Patent No. 5,184,037.

Regarding claim 3, Pierce discloses a speaker unit as claimed. Pierce further discloses a vibrator (2) made of a magnetostrictive material. Pierce does not expressly disclose the magnetostrictive element comprises a giant magnetostrictive material containing Tb, Dy and Fe. However, the use of Tb, Dy, Fe magnetostrictive elements are well known in the art and Kobayashi teaches a magnetostrictive vibrator comprising giant magnetostrictive material containing Tb, Dy and Fe (See col. 6, lines 13-19). Therefore, It would have been obvious to one of ordinary skill in the art to utilize a Tb, Dy, Fe magnetostrictive element in the vibrator of Pierce to provide great displacement (See Kobayashi col. 1, lines 29-34).

Regarding claims 4 and 5, Pierce discloses a speaker unit as claimed. Pierce does not expressly disclose a permanent magnet is provided on said one end and said other end of said vibrator respectively which applies a bias magnetic field to said vibrator. However, the use of magnets in a rod type vibrator is well known in the art and Kobayashi teaches an annular permanent magnet (10a and 10b) mounted at each end of the vibrator (See Fig. 2 and col. 6, lines 39-45). Therefore, It would have been obvious to one of ordinary skill in the art to provide permanent magnets at the ends of the vibrator to produce a predetermined bias for the vibrator (See col. 7, lines 14-16).

Regarding claim 6, Pierce discloses a speaker unit as claimed. Pierce does not expressly disclose said counter-mass is composed of a soft magnetic material. However, the use of a counter-mass is composed of a soft magnetic material is well known in the art and Kobayashi teaches a counter-mass (6) which forms a main part of the closed magnetic structure (See col. 6,

lines 65-68 and col. 7, lines 28-40). Therefore, It would have been obvious to one of ordinary skill in the art to construct the counter-mass of soft magnetic material to concentrate the magnetic field and improve the efficiency of the transducer (See col. 7, lines 28-40).

Regarding claim 8, Pierce discloses a speaker unit as claimed. Pierce does not expressly disclose a first permanent magnet which is positioned between said counter-mass and said vibrator, and a second permanent magnet which is positioned between said transmission member and said vibrator. However, the use of magnets in a rod type vibrator is well known in the art and Kobayashi teaches an annular permanent magnet (10a and 10b) mounted at each end of the vibrator (See Fig. 2 and col. 6, lines 39-45). Therefore, It would have been obvious to one of ordinary skill in the art at the time to provide permanent magnets at the ends of the vibrator to produce a predetermined bias for the vibrator (See col. 7, lines 14-16).

Regarding claim 10, Pierce discloses a speaker unit as claimed. Pierce further discloses a drive coil (24)is provided around said vibrator in said housing for generating a magnetic field in response to an incoming signal and making said vibrator vibrate with the magnetic field (See Figs.2 and 8 and page 2, lines 15-48). Pierce does not expressly disclose said vibrator is a magnetostrictive element comprising a giant magnetostrictive material containing Tb, Dy and Fe). However, the use of Tb, Dy, Fe magnetostrictive elements are well known in the art and Kobayashi teaches a magnetostrictive vibrator comprising giant magnetostrictive material containing Tb, Dy and Fe (See col. 6, lines 13-19). Therefore, It would have been obvious to one of ordinary skill in the art to utilize a Tb, Dy, Fe magnetostrictive element in the vibrator of Pierce to provide great displacement (See Kobayashi col. 1, lines 29-34).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pierce.

Regarding claim 12, Pierce does not expressly disclose said counter-mass has a mass 10 to 200 times larger than that of said vibrator. However, Pierce does not limit the size of the counter-mass and teaches the mass of the counter-mass is heavy enough to maintain the free end stationary (See page 2, lines 63-68). There, it would have been obvious to one of ordinary skill in the art that the mass of the counter-mass is much larger in magnitude than the mass of the vibrator and in the order of tens of times greater than that of the vibrator to maintain the free end stationary. Pierce teaches the vibrator is a hollow nickel tube with a diameter of ½ inch, a wall thickness of 0.005 – 0.025 inches and a length of 4-30 inches (See page 3, lines 103-106) while the counter-mass is about 10 pounds (A calculation of the mass of the largest nickel vibrator disclosed shows the mass to be about 1 oz, therefore the counter-mass is approximately 160 times larger than the mass of the vibrator).

Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Michio Japanese Patent Publication 2000-312394 in view of Flanagan International Publication WO 02/076141 A2.

Regarding claim 16, Michio discloses a sound output device comprising: a cylindrical housing (102), a sound storing part (11) which is held in the housing and receives an external signal (from a microphone or recorded medium, See translation paragraph 0022), a vibrator (18) which is held in said housing and vibrates in the axial direction of said housing in response to the signal received by said storing part, and a transmission member (19) which transmits vibration from said vibrator to the outside (See Figs. 4, 7, 8 and translation paragraphs 0022, 0025 and 0029). Michio does not expressly disclose the storing part receives an external signal transmitted wirelessly. However, wireless transmission of signals to sound output devices is well known in

the art and Flanagan teaches a self contained sound output device comprising a receiver for providing a wireless connection to a local signal source and producing an audio output with an audio frequency actuator adapted to induce acoustic wave into a panel when the device is brought into contact with the panel such that the panel radiates audible sound (See Flanagan page 3, line 16 to page 4, line 7). Therefore, It would have been obvious to one of ordinary skill in the art to provide the wireless connection as taught by Flanagan in the sound output device of Michio to allow freedom of movement without the constraints of a wired connection.

Regarding claim 17, the combination of Michio in view of Flanagan further discloses a receiver circuit which receives an external signal transmitted wirelessly, a battery which supplies electric power to said receiver circuit and a casing containing said receiver circuit and said battery and held by said housing, wherein said casing containing said receiver circuit and said battery has a given multiple or more of mass than that of said vibrator (See Flanagan page 3, line 16 to page 4, line 7, page 8, lines 27 to page 9, line14 and page 12, lines 8-22. See Michio Fig. 4 and translation paragraph 0014).

Regarding claim 19, the combination of Michio in view of Flanagan further discloses said sound output device is stick-shaped as a whole by structuring said housing such that the length thereof in the vibrator direction of the vibrator is larger than that in the direction perpendicular to the vibration direction (See Michio Fig. 1).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Michio in view of Flanagan as applied to claim 16 above, and further in view of Kobayashi.

Regarding claim 18, the combination of Michio in view of Flanagan discloses a magnetostrictive element comprising a giant magnetostrictive material (4) and a drive coil (6) is

provided around said vibrator in said housing for generating a magnetic field in response to an incoming signal and making said vibrator vibrate with the magnetic field (See Flanagan Fig. 1 and page 11, line 19 to page 12, line22). The combination of Michio in view of Flanagan does not expressly disclose the magnetostrictive element comprises a sintered body having an atomic composition of Tb.sub.XDy.sub.1-XFe.sub.Y (wherein, X is 0.25 to 0.50 and Y is 1.7 to 2.0). However, the composition of a giant magnetostrictive material is well known to be Tb.sub.XDy.sub.1-XFe.sub.Y (wherein, X is 0.25 to 0.50 and Y is 1.7 to 2.0) and Kobayashi teaches a magnetostrictive vibrator comprising giant magnetostrictive material containing Tb, Dy and Fe (See col. 6, lines 13-19). Therefore, It would have been obvious to one of ordinary skill in the art to utilize a Tb, Dy, Fe magnetostrictive element in the vibrator of the combination of Michio in view of Flanagan to provide great displacement (See Kobayashi col. 1, lines 29-34).

Allowable Subject Matter

Claims 2 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Ensey whose telephone number is 571-272-7496. The examiner can normally be reached on Monday - Friday 6:00 AM - 2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Suhan Ni can be reached on 571-272-7505. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian Ensey/
Primary Examiner, Art Unit 2615
September 16, 2008